

# FOREST RESEARCH NOTES

NORTHEASTERN FOREST EXPERIMENT STATION

Upper Darby, Pennsylvania



No. 26

December 1953

## Rooting Ability Of Native Cottonwoods

### Depends On The Clone Used

Vegetative propagation of eastern cottonwood (Populus deltoides) from dormant cuttings has generally been considered rather easy. Yet test plantings of unrooted cuttings of this species on the Hopkins Memorial Experimental Forest at Williamstown, Mass., showed considerable variation in rooting ability of the clones used.

In the spring of 1953, dormant unrooted cuttings of 30 cottonwood clones were planted in a test plantation to compare their performance with that of 30 hybrid poplar clones. Cuttings for 15 of the cottonwood clones were collected from young trees growing along the banks of the Hoosac River in Pownal, Vt. Cuttings representing 15 other cottonwood clones were supplied by the Maria Moores Cabot Foundation; these clones were originally from several widely scattered sources in the United States. The hybrid poplar clones were from the original hybrid poplar plantations in Maine.<sup>1</sup>

All cuttings were taken from wood that had formed in 1952. They were cut to a uniform 12-inch length and were graded roughly from a 3/16-inch to a 1/2-inch middle diameter. The hybrid stock, and presumably the Cabot stock, were taken from stool plantations that are cut back annually. The Pownal stock was from trees that ranged in age from 3 to 10 years. They had not been cut back.

All cuttings were planted at 4 by 4-foot spacing on prepared ground. They were kept cultivated to control weeds. Plantings were made on two sites and were replicated twice at each site. The arrangement of the clones in each replicate was random.

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<sup>1</sup>Schreiner, Ernst J. Poplars can be bred to order.  
U. S. Dept. Agr. Yearbook 1949: 153-157. 1949.



Table 1.--Rooting of dormant cuttings in test plantation

| Species and source         | Clones tested | Cuttings rooted <sup>1</sup> |                |                |
|----------------------------|---------------|------------------------------|----------------|----------------|
|                            |               | Maximum                      | Minimum        | Average        |
|                            | <u>No.</u>    | <u>Percent</u>               | <u>Percent</u> | <u>Percent</u> |
| <u>P. deltoides</u> from-- |               |                              |                |                |
| Pownal, Vermont            | 15            | 55                           | 3              | 19             |
| Cabot Foundation           | 15            | 100                          | 38             | 70             |
| Hybrid poplars             | 30            | 100                          | 92             | 98             |

<sup>1</sup> Average of four replicates.

Approximately one month after planting, the plantations were examined for survival. The hybrid poplar clones rooted best (97.5 percent), then the Cabot stock (70.3 percent), and the Pownal stock (18.9 percent).

The 15 Pownal clones showed the widest range in rooting, from an average low of 3 percent for all four replications to an average high of 55 percent. The Cabot stock ranged from 38 percent to 100 percent. The 30 hybrid poplar clones showed the greatest uniformity in rooting: all replications averaged better than 92 percent.

The poor rooting and the variation in rooting ability of the Pownal clones may be due to some extent to the fact that the cuttings were taken from trees that had not been cut back as the source trees of the other clones had. Since this test, the Pownal trees have been cut back and stool cuttings will be available for planting next spring. Then we can determine if stool cuttings root more readily than stem cuttings.

The uniform and high percentage of rooting of the hybrid poplar clones can be attributed to the careful selections made for rooting ability among the thousands of hybrid clones that were established in the original hybrid poplar plantations in Maine.

--FRANK E. CUNNINGHAM